

Remote Sensing of Environment

An Interdisciplinary Journal

VOLUME 30 1989

Contents

Susan Ringrose, Wilma Matheson, Boikhutso Mogotsi, and Faith Tempest
The Darkening Effect in Drought Affected Savanna Woodland Environments Relative to Soil Reflectance in Landsat and SPOT Wavebands 1

C. Proy, D. Tanré, and P. Y. Deschamps
Evaluation of Topographic Effects in Remotely Sensed Data 21

Peng Gong and Philip J. Howarth
Performance Analyses of Probabilistic Relaxation Methods for Land-Cover Classification 33

E. Raymond Hunt, Jr., and Barrett N. Rock
Detection of Changes in Leaf Water Content Using Near- and Middle-Infrared Reflectances 43

Larry R. G. Martin and Philip J. Howarth
Change-Detection Accuracy Assessment Using SPOT Multispectral Imagery of the Rural-Urban Fringe 55

Frank E. Hoge, C. Wayne Wright, Robert N. Swift, and James K. Yungel
Airborne Discrimination Between Ice and Water: Application to the Laser Measurement of Chlorophyll-in-Water in a Marginal Ice Zone 67

M. Susan Moran, Ray D. Jackson, Lee H. Raymond, Lloyd W. Gay, and Philip N. Slater
Mapping Surface Energy Balance Components by Combining Landsat Thematic Mapper and Ground-Based Meteorological Data 77

Ian J. Barton and Janice M. Bathols
Monitoring Floods with AVHRR 89

A. K. Fung, K. S. Chen, and M. F. Chen
A Note on the Directional Sea Spectrum 95

M. M. Ali
Role of Absorbed Solar Radiation on Indian Ocean Surface Temperature: A Case Study for Calm Winds Using Satellite Data 107

David S. Bartlett, Gary J. Whiting, and Jean M. Hartman
Use of Vegetation Indices to Estimate Intercepted Solar Radiation and Net Carbon Dioxide Exchange of a Grass Canopy 115

Stanley R. Herwitz, David L. Peterson, and J. Ronald Eastman
Thematic Mapper Detection of Changes in the Leaf Area of Closed Canopy Pine Plantations in Central Massachusetts 129

B. Dey and Uri Feldman
Observations of Winter Polynyas and Fractures Using NOAA AVHRR TIR Images and Nimbus-7 SMMR Sea Ice Concentration Charts 141

Guang-tsai Lei, Richard K. Moore, and Siva Prasad Gogineni
A Method for Measuring Snow Depth Using Fine-Resolution Radars 151

Walter C. Bausch, Daniel M. Lund, and Michael C. Blue
Robotic Data Acquisition of Directional Reflectance Factors 159

J. A. Wood, M. Lasserre, and G. Fedosejevs
Analysis of Mid-Infrared Spectral Characteristics of Rock Outcrops and an Evaluation of the Kahle Model in Predicting Outcrop Thermal Inertias 169

Ross Nelson
Regression and Ratio Estimators to Integrate AVHRR and MSS Data 201

James E. Vogelmann and Barrett N. Rock
Use of Thematic Mapper Data for the Detection of Forest Damage Caused by the Pear Thrips 217

Bruce A. Campbell, Stanley H. Zisk, and Peter J. Mouginis-Mark
A Quad-Pol Radar Scattering Model for Use in Remote Sensing of Lava Flow Morphology 227

A. Vodacek
Synchronous Fluorescence Spectroscopy of Dissolved Organic Matter in Surface Waters: Application to Airborne Remote Sensing 239

William D. Bowman

**The Relationship Between Leaf Water Status, Gas Exchange,
and Spectral Reflectance in Cotton Leaves** 249

J. H. Everitt, D. E. Escobar, and A. J. Richardson

**Estimating Grassland Phytomass Production with Near-Infrared
and Mid-Infrared Spectral Variables** 257

N. M. Milton, C. M. Ager, B. A. Eiswerth, and M. S. Power

**Arsenic- and Selenium-Induced Changes in Spectral Reflectance
and Morphology of Soybean Plants** 263

Review

Paul J. Curran

Remote Sensing of Foliar Chemistry 271

Author Index for 1989, Volumes 27-30 279

Subject Index for 1989, Volumes 27-30 284

